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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/718,025	11/20/2003	Tomohiro Oshiyama	KOT-0085	8793

7590 03/19/2007

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Bloomfield, CT 06002

EXAMINER	
THOMPSON, CAMIE S	
ART UNIT	PAPER NUMBER
1774	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/19/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/718,025	OSHIYAMA ET AL.	
	Examiner	Art Unit	
	Camie S. Thompson	1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *Amendment filed on December 15, 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-35 and 43-51* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *8-35 and 43-51* is/are allowed.

6)☒ Claim(s) *1-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's amendment and accompanying remarks filed December 15, 2006 are acknowledged.

2. Examiner acknowledges amended claim 1.

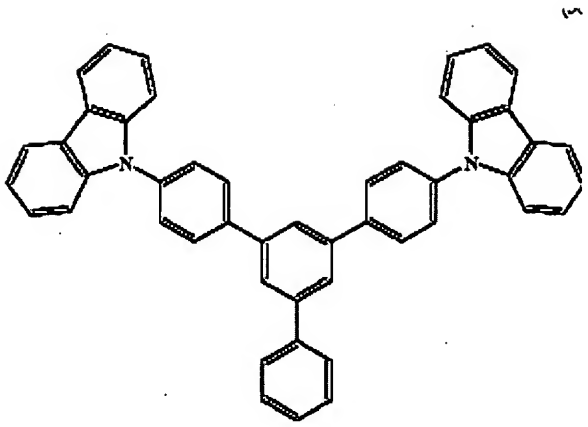
Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1 and 5-7 are rejected under 35 U.S.C. 102(e) as being anticipated by Hosokawa, U.S. Patent Number 6,660,410.

Hosokawa discloses an organic electroluminescent element comprising an anode layer, a cathode layer and an organic luminescence layer therebetween wherein the organic luminescence layer comprises a carbazole derivative such as



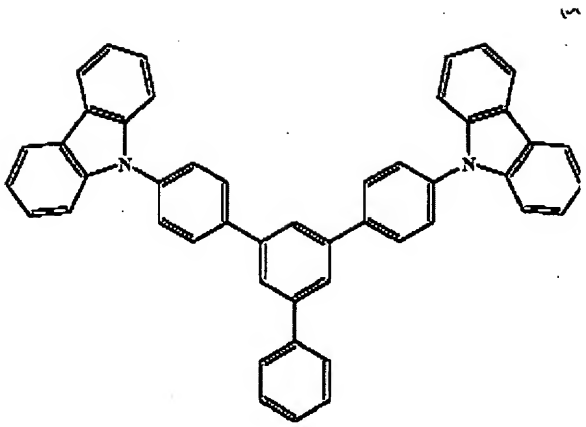
and a phosphorescent dopant (see column 2, lines 55-68). Column 23, lines 12-55 of the reference discloses that the phosphorescent dopant is a metal complex wherein the metal is selected from Ir, Pt or Os. The reference reads on the instant claims when X_1 of the instant claims is formula (c) and n is 2 for the instant claims.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hosokawa, U.S. Patent Number 6,660,410 in view of Suzuri et al., U.s. Patent Number 6,690,364. Hosokawa discloses an organic electroluminescent element comprising an anode layer, a cathode layer and an organic luminescence layer therebetween wherein the organic luminescence layer comprises a carbazole derivative such as



and a phosphorescent dopant (see column 2, lines 55-68). Column 23, lines 12-55 of the reference discloses that the phosphorescent dopant is a metal complex wherein the metal is selected from Ir, Pt or Os. The reference reads on the instant claims when X_1 of the instant claims is formula (c) and n is 2 for the instant claims. Hosokawa does not disclose a hole blocking layer in the device. Suzuri discloses an electroluminescent device comprising a substrate and provided thereon, a light emission layer and at least one layer of a hole injecting layer, a hole transporting layer, an electron injecting layer and an electron transporting layer (see Figures 1&2 and column 5, lines 51-column 6, line 11). Additionally, the reference discloses that the light emission layer comprises a host material comprising a carbazole derivative and phosphorescent dopant such as an iridium complex or platinum complex (see column 6, lines 12-64). The Suzuri reference also discloses that a hole blocking layer can be present and can comprise an oxadiazole derivative (see column 8, lines 49-68 and column 10, lines 1-13). A hole blocking layer increases a recombination probability of electrons. Therefore, it would have

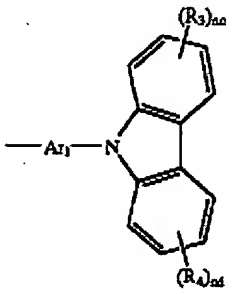
been obvious to one of ordinary skill in the art to have a hole blocking layer in Hosokawa reference in order to increase the quantum efficiency of the light emission layer in order to have a device that is highly stable, efficient and has increased luminescence.

7. Claims 8-35 and 43-51 are allowed. The prior art does not provide for an organic electroluminescent element comprising an anode, a cathode and a component layer including a light emission layer, the component layer being provided between the anode and the cathode, wherein the component layer contains a compound represented by formula 3,

$$X_2\text{-}(A_2)_m$$

wherein A_2 represents a group represented by formula 4, provided that plural A_2 may be the same or different,

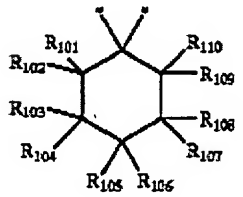
Formula 4



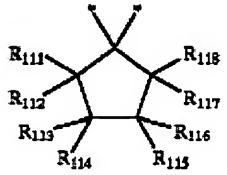
wherein Ar_2 represents a divalent aromatic hydrocarbon or aromatic heterocyclic group; R_3 and R_4 independently represents a hydrogen atom, a substituted or unsubstituted alkyl group, a substituted or unsubstituted cycloalkyl group, a substituted or unsubstituted aralkyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted alkoxy group, a substituted or unsubstituted aryloxy group, a cyano group, a hydroxyl group, a substituted or unsubstituted

alkenyl group, or a halogen atom; nc and nd independently represent an integer of from 1 to 4; m represents an integer of 2; and X_2 represents a group represented by formula (l), (m), (n), or (o),

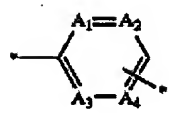
Formula (l)



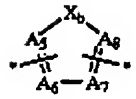
Formula (m)



Formula (n)



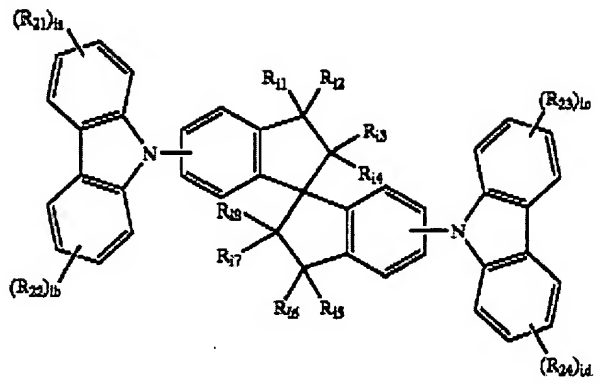
Formula (o)



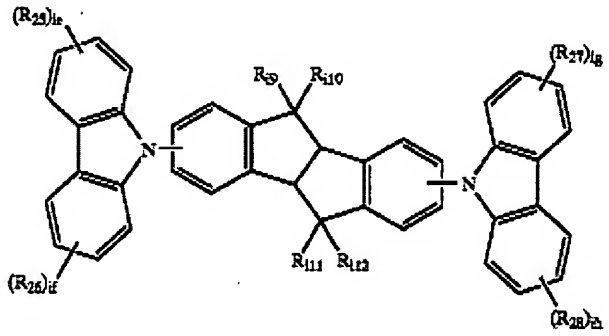
wherein R_{101} and R_{110} independently represent a hydrogen atom, an alkyl group, or an alkoxy group, provided that R_{101} and R_{110} does not simultaneously hydrogen atoms, and any two R_{101} and R_{110} do not combine with each other to form a ring; R_{111} and R_{118} independently represent a hydrogen atom, an alkyl group, or an alkoxy group; A_1, A_2, A_3 and A_4 independently represent

-C(R_{k1})= or –N=, in which R_{k1} represents a hydrogen atom or an alkyl group, provided that at least one a A_1, A_2, A_3 and A_4 is –N=; A_5, A_6, A_7 and A_8 independently represents –C(R_{k2})= or –N=; X_b represents –N(R_{k3})= or –Si(R_{k4})(R_{k5})-, which R_{k2-k5} independently represent a hydrogen atom, a substituted or unsubstituted alkyl group, a substituted or unsubstituted cycloalkyl group, a substituted or unsubstituted aralkyl group, a substituted or unsubstitued aryl group, a substituted or unsubstituted alkoxy group, a substituted or unsubstituted aryloxy group, a cyano group, a hydroxyl group, a substituted or unsubstituted alkenyl group, or a halogen atom; and "*" represents a linkage site.

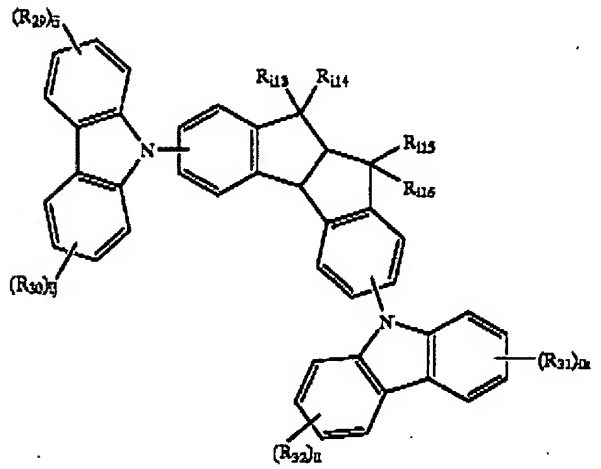
The prior art does not provide for an organic electroluminescent element comprising an anode, a cathode and a component layer including a light emission layer, the component layer being provided between the anode and the cathode, wherein the component layer contains a compound represent by formulae I1, I2, I3, J1 or J2

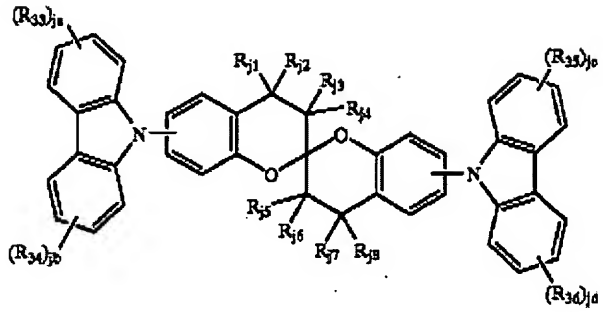


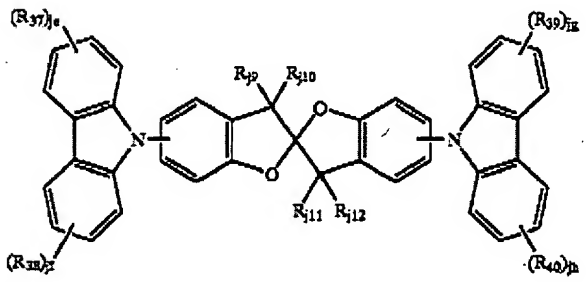
[0066] Formula I2

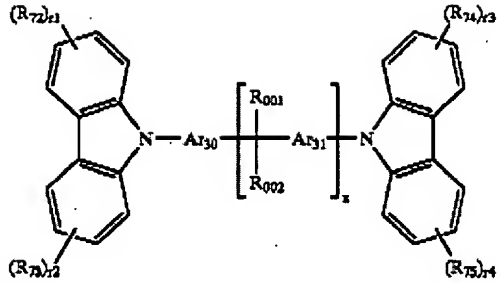


[0067] Formula I3









wherein $R_{i1\text{-}i16}$ independently represent a hydrogen atom, an alkyl group, a cycloalkyl group, an aralkyl group, an alkoxy group or a halogen atom; $R_{21\text{-}32}$ independently represent a hydrogen atom, a substituted or unsubstituted alkyl group, a substituted or unsubstituted cycloalkyl group, a substituted or unsubstituted aralkyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted alkoxy group, a substituted or unsubstituted aryloxy group, a cyano group, a hydroxyl group, a substituted or unsubstituted alkenyl group, or a halogen atom; and ia-io independently represent an integer of from 1 to 4; $R_{j1\text{-}j12}$ independently represents a hydrogen atom, an alkyl group, a cycloalkyl group, an aralkyl group, an alkyoxy group or a halogen atom; $R_{33\text{-}40}$ independently represent a hydrogen atom, a substituted or unsubstituted alkyl group, a substituted or unsubstituted cycloalkyl group, a substituted or unsubstituted aryl group, a

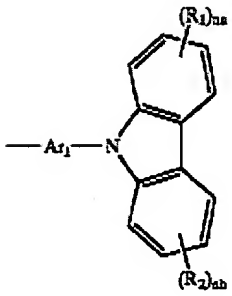
substituted or unsubstituted aralkyl group, a substituted or unsubstituted alkoxy group, a substituted or unsubstituted aryloxy group, a cyano group, a hydroxyl group, a substituted or unsubstituted alkenyl group, or halogen atom; and ja-jh independently represent an integer of from 1 to 4.

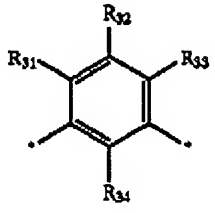
Response to Arguments

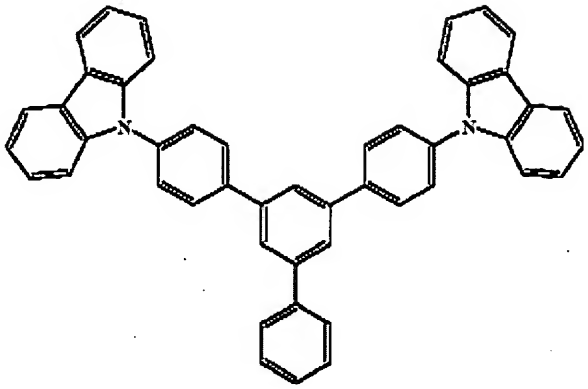
8. Applicant's arguments filed December 15, 2006 have been fully considered but they are not persuasive. Applicant argues that the Hosokawa reference fails to disclose any one formula b-k. Present claim 1 recites a component layer that contains a compound represented by

X_1-$(A_1)_n$

wherein n can be 2 and A_1 is represented by



and X_1 can be (c), which is  . Hosokawa discloses a component layer in an electroluminescent device wherein the component layer has the compound



. The compound of the Hosokawa reference reads on the instant claims. The rejections are maintained.

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Camie S. Thompson whose telephone number is (571) 272-1530. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena L Dye, can be reached at (571) 272-3186. The fax phone number for the Group is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RENA DYE
SUPERVISORY PATENT EXAMINER
AU 1774